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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/616,520	07/09/2003	Yu-Ting Lin	B-5144 621063-7	1198

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EXAMINER

YANG, NELSON C

ART UNIT PAPER NUMBER

1641

DATE MAILED: 01/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/616,520	LIN ET AL.	
	Examiner	Art Unit	
	Nelson Yang	1641	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11/17/05.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) 1-17 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 18-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>7/9/03</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of group II, claims 18-28, in the reply filed on November 17, 2005 is acknowledged. The traversal is on the ground(s) that it is unclear how using photolithography techniques would not fall within the scope of claim 1. This is not found persuasive because photolithography techniques do not require the use of micro-injection processes, which is a step required by claim 1. Therefore, the photolithography techniques would not fall within the scope of claim 1.
2. The requirement is still deemed proper and is therefore made FINAL.

Claim Objections

3. Claim 23 is objected to because of the following informalities: "hydrophobically" in line 2 should be --hydrophobic--. Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
5. Claims 22, 24 and 25 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
6. Claim 22 recites that "the substrate is a hydrophilic substrate..." The claim is vague and indefinite because claim 22 depends ultimately from claim 19, which recites that the substrate is a hydrophobic substrate. It is not clear in claim 22 whether a hydrophilic substrate or a

hydrophobic substrate is being claimed. (For purposes of examination, claim 22 is interpreted to claim a hydrophobic substrate).

7. Claims 24 and 25 recited a hydrophilic treatment to add a hydrophilic functional group on the hydrophilic partitions. It is not clear whether or not this hydrophilic treatment and hydrophilic functional group is the same or different/additional to the hydrophilic treatment and hydrophilic functional group in claim 20, from which claims 24 and 25 depend. (For purposes of examination, claims 24 and 25 are interpreted to refer to the same hydrophilic treatment and hydrophilic functional group as in claim 20).

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 18-25 are rejected under 35 U.S.C. 102(b) as being anticipated by Wohlstadter et al [US 6,066,448].

With respect to claim 18, Wohlstadter et al teach a biochip comprising a substrate (i.e., “surface” in col. 17, line 25), a plurality of hydrophobic regions (col. 17, lines 37-38), (the hydrophobic regions are capable of being formed on the substrate by micro-injecting a hydrophobic material on the substrate, as claimed by Applicant); a plurality of hydrophilic partitions (col. 17, lines 35-38) separated by the hydrophobic regions disposed on the substrate; and a probe (i.e. “binding reagents” in col. 17, line 25) immobilized on each partition (the probe is capable of being immobilized by a micro-injecting process, as claimed by Applicant).

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10. With respect to claim 19, the substrate is a hydrophobic substrate made of glass, ceramics or metals (col. 12, lines 5-7).

11. With respect to claim 20, the surface of the hydrophobic substrate contains a hydrophilic functional group (i.e., "streptavidin" in col. 17, line 67) after a hydrophilic treating (col. 17, lines 35-38).

12. With respect to claim 21, the hydrophilic functional group is streptavidin (col. 17, line 67).

13. With respect to claim 22, because the claim is vague and indefinite as described above, the claim is interpreted to mean that the substrate is hydrophobic, as indicated in claim 19 above, from which claim 22 depends.

14. With respect to claim 23, the substrate becomes hydrophobic because of a hydrophobic treatment performed on the substrate before the plurality of the partitions are formed (col. 12, lines 5-6 and col. 17, lines 25-38). (The limitations in claim 23 are examined as if they are product-by-process limitations. Because hydrophilic regions and hydrophobic regions are formed and are structurally the same as Applicant's device, the reference meets the claimed limitation regarding the hydrophobic treatment performed on the substrate).

15. With respect to claim 24, a hydrophilic treatment is performed on the partitions to add a hydrophilic functional group thereto after the partitions are formed (col. 17, lines 25-38).

16. With respect to claim 25, the hydrophilic functional group is streptavidin (col. 17, line 67).

17. Claims 18-28 are rejected under 35 U.S.C. 102(b) as being anticipated by Zaffaroni et al, 6,121, 048.

With respect to claim 18, Zaffaroni et al teach a biochip comprising a substrate (col. 9, line 21) of hydrophobic regions formed on the substrate (the hydrophobic regions being capable of forming by micro-injecting a hydrophobic material on the substrate); a plurality of hydrophilic partitions separated by the hydrophobic regions disposed on the substrate (col. 9, lines 27-31); and a probe (col. 8, lines 4-11) immobilized on each partition (the probe being capable of immobilizing by a micro-injecting process).

18. With respect to claim 19, the substrate is a hydrophobic substrate made of glass (col. 10, line 17).

19. With respect to claim 20, the surface of the hydrophobic substrate contains a hydrophilic functional group after a hydrophilic treating (col. 9, lines 26-31).

20. With respect to claim 21, the hydrophilic functional group is NH_2 (col. 5, line 64 – col. 6, line 7).

21. With respect to claim 22, because the claim is vague and indefinite as described above, the claim is interpreted to mean that the substrate is hydrophobic, as indicated in claim 19 above, from which claim 22 depends.

22. With respect to claim 23, the substrate becomes hydrophobic because of a hydrophobic treatment performed on the substrate before the plurality of the partitions are formed (col. 10, line 17). (The limitations in claim 23 are examined as if they are product-by-process limitations. Because hydrophilic regions and hydrophobic regions are formed and are structurally the same as Applicant's device, the reference meets the claimed limitation regarding the hydrophobic treatment performed on the substrate).

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23. With respect to claim 24, a hydrophilic treatment is performed on the partitions to add a hydrophilic functional group thereto after the partitions are formed (col. 9, lines 27-31).

(Although the protective group is removed to expose the hydrophilic group, the structure is the same as Applicant's claimed invention).

24. With respect to claim 25, the hydrophilic functional group is amine (NH₂).

25. With respect to claim 26, the hydrophobic material is polyimide (col. 5, line 60).

26. With respect to claim 27, the probe is antibodies, protein, or nucleotides (col. 6, lines 17-42).

27. With respect to claim 28, the probe is immobilized on the partition by covalent binding (col. 8, lines 4-11).

Conclusion

28. No claims are allowed.


29. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nelson Yang whose telephone number is (571) 272-0826. The examiner can normally be reached on 8:30-5:00.

30. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Long V. Le can be reached on (571)272-0823. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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31. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Nelson Yang
Patent Examiner
Art Unit 1641


LONG V. LE
SUPERVISORY PATENT EXAMINER
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01/04/06